

Pickerel Lake

Site Description

Location

Water designation number (WDN)	22-0002-00
Legal description	T124N-R53W-Sec.15,22,23,26,27,34,35
County (ies)	Day
Location from nearest town	6 miles northeast of Grenville

Survey Dates and Netting Information

Dates of current survey	June 24-26, 2008 (FN,GN) September 17, 2008 (EF-WAE, SMB)
Date of most recent survey	June 19-21, 2007 (FN,GN) August 29, 2007 (EF-WAE, SMB)
Gill net sets (n)	6
Frame net sets (n)	18
Fall electrofishing-WAE, SMB (min)	60

Morphometry (Figure 1)

Watershed area (acres)	17,165
Surface area (acres)	981
Maximum depth (ft)	41
Mean depth (ft)	16

Ownership and Public Access

Pickerel Lake is a meandered lake managed by the SDGFP. Four public access sites exist on Pickerel Lake; two are located within State Parks on the east and west shores; one at the "Old Pickerel Lake Hatchery Site" located south of the State Park East Unit; and a section line access point, which does not include a boat ramp, in the northwest corner of the lake (Figure 1-2). Ownership of the Pickerel Lake shoreline includes the State of South Dakota, the Bureau of Indian Affairs, and private ownership. The shoreline of Pickerel Lake is highly developed.

Watershed and Land Use

The Pickerel Lake watershed is comprised of a mix of cropland (62%) and pasture or grassland (38%).

Water Level Observations

The South Dakota Water Management Board established Ordinary High Water Mark (OHWM) is 1845.6 fmsl, and the outlet elevation of Pickerel Lake is 1844.9 fmsl. On May 7, 2008, Pickerel Lake was above the outlet elevation and OHWM with an elevation of 1845.9 fmsl. On October 21, 2008 the elevation of Pickerel Lake was 1845.3 fmsl which was below OHWM but still exceeded the outlet elevation.

Aquatic Vegetation and Exotics

Emergent vegetation is limited to relatively undeveloped areas of Pickerel Lake; while submersed vegetation exists in shallow protected areas of the lake. Common carp has been the only exotic species reported in Pickerel Lake.

Fish Management Information

Primary species	black crappie, bluegill, smallmouth bass, walleye, yellow perch
Other species	largemouth bass, northern pike, black bullhead, fathead minnow, common carp, johnny darter, rock bass, spottail shiner, white bass, white sucker
Lake-specific regulations	NE Panfish Management Area: 10 daily; 50 possession. Smallmouth/Largemouth bass daily limit of 3. Only those <12", or 18" and longer may be taken. Of those no more than one may be 18" or longer. Walleye/Saugeye: minimum length 14".
Management classification	warm-water permanent
Fish Consumption Advisories	none

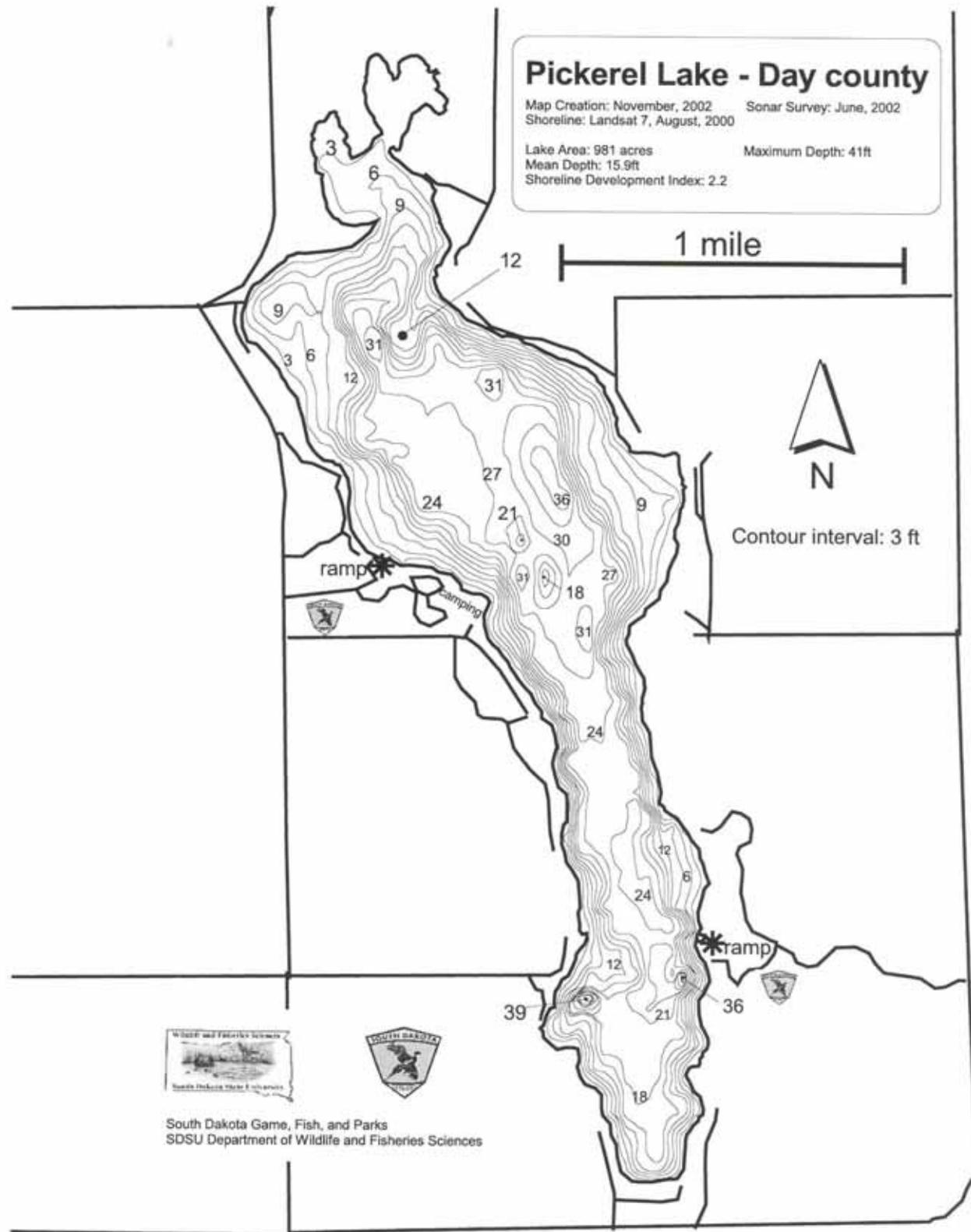


Figure 1. Contour map of Pickerel Lake, Day County, South Dakota.

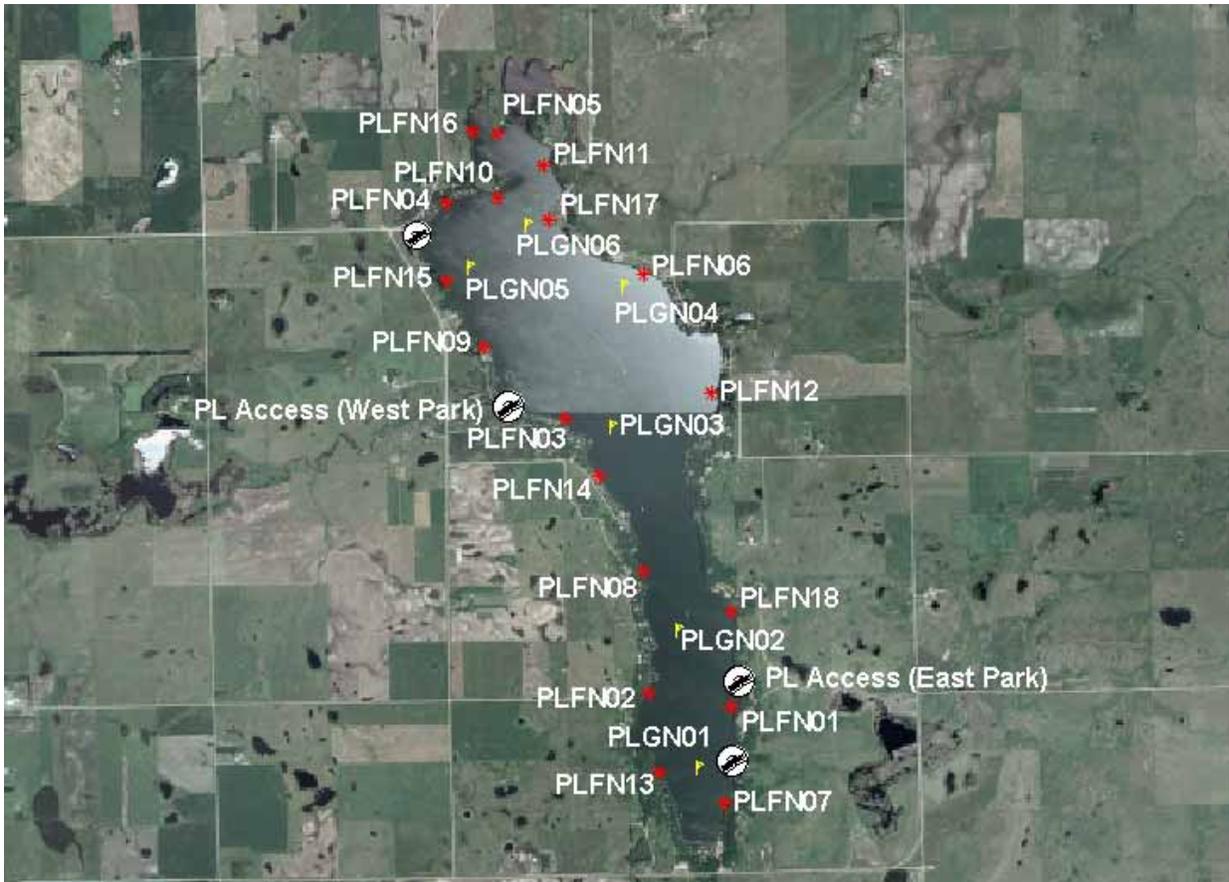


Figure 2. Map depicting public access locations and standardized net locations for Pickerel Lake, Day County, South Dakota. PLFN= frame nets, PLGN= gill nets

Management Objectives

- 1) Maintain a mean frame net CPUE of stock-length black crappie ≥ 10 , a PSD of 30-60, and a PSD-P of 5-10.
- 2) Maintain a mean frame net CPUE of stock-length bluegill ≥ 25 , a PSD of 30-60, and a PSD-P of 5-10.
- 3) Maintain a mean gill net CPUE of stock-length northern pike ≥ 3 , a PSD of 30-60, and a PSD-P of 5-10.
- 4) Maintain a moderate density smallmouth bass population with a PSD of 40-70, and a PSD-P of 10-40.
- 5) Maintain a mean gill net CPUE of stock-length walleye ≥ 10 , a PSD of 30-60, and a PSD-P of 5-10.
- 6) Maintain a mean gill net CPUE of stock-length yellow perch ≥ 25 , a PSD of 30-60, and a PSD-P of 5-10.
- 7) Maintain a mean frame net CPUE of stock-length bullhead ≤ 100 .

Results and Discussion

Pickerel Lake is the uppermost lake in a chain of lakes known as the Waubay Lakes Basin. Pickerel Lake is a very popular recreational destination, especially during the summer months. Pickerel Lake is highly developed with nearly the entire lake shoreline supporting residential housing and cabins. In addition, Pickerel Lake has two State Parks located on the east and west shores. Currently, Pickerel Lake is primarily managed as a panfish (i.e., black crappie, bluegill, and yellow perch), smallmouth bass and walleye fishery. Overall, as many as 15 fish species contribute to the Pickerel Lake fishery.

Primary Species

Black crappie: Relative abundance of black crappie in Pickerel Lake appeared to be high in 2008 (> 10 stock-length black crappie/net). The mean frame net CPUE of stock-length black crappie was 15.6 (Table 1) and above the minimum objective (≥ 10 stock-length black crappie/net; Table 3). Length-frequency analysis and age structure information for black crappie in the 2008 frame net catch indicated the presence of a strong 2005 year-class. This year-class dominated the size structure and resulted in the increased relative abundance (Table 2; Table 7; Figure 3). Since 2001, abundance of black crappie, as indexed by mean frame net CPUE has fluctuated from a low of 1.4 (2005) to high of 19.7 (2002), with the 2001-2008 average being 10.2 (Table 2).

Black crappie captured in frame nets during 2008 ranged in total length from 16 to 32 cm (6.3 to 12.6 in; Figure 3). Black crappie from the 2005 year-class comprised approximately 94% of black crappie sampled in the 2008 frame net catch and the majority exceeded quality-length (20 cm; 8 in) resulting in an increased PSD of 61 (Table 3; Table 5; Figure 3). The PSD-P was 7, as black crappie from previous strong year classes produced in 1998 and 2001 also contributed to the 2008 frame net catch (Table 1; Table 5; Figure 3).

Black crappie from the 2005 year-class, which dominated the population, had a weighted mean length at capture of 153 mm at age-2 and 201 mm at age-3 (Table 6). Year classes produced in 2001 (age-7) and 1998 (age-10) had weighted mean total length at capture values of 285 and 294 mm, respectively (Table 6). Mean W_r values of black crappies captured in frame nets ranged from 83-114 for all length categories sampled. A decreasing trend in mean W_r values was apparent as black crappie total length increased. The majority of black crappie captured in the 2008 frame net catch were in the stock- to quality and quality- to preferred-length categories which had mean W_r values of 114 and 109.

Bluegill: The mean frame net CPUE of stock-length bluegill during 2008 was 29.2 (Table 1) and above the minimum objective (≥ 25 stock-length bluegill/net) for Pickerel Lake (Table 3). Since 2001, bluegill relative abundance in Pickerel Lake has fluctuated from a low of 1.4 (2001) to a high of 29.2 (2008) stock-length bluegill/net with the 2001-2008 average being 10.2 (Table 2). Based on the mean frame net CPUE in 2008, relative abundance appears to be high (>24 stock-length bluegill/net).

Length frequency analysis of frame net captured bluegills from 2005-2007 indicates relatively consistent recruitment of varying magnitude in recent years (Figure 4). In 2008, a sub-sample of 23 bluegills ranging in total length from 14 to 19 cm (5.5 to 7.5 in) was collected for age and growth analysis and all were from the 2005 (age-3) year-class, which likely comprises the majority of bluegill in the 2008 frame net catch (Figure 4).

Bluegill captured in the 2008 frame net catch from Pickerel Lake ranged in total length from 13 to 25 cm (5.1 to 9.8 in), had a PSD of 90 and a PSD-P of 6 (Table 1; Figure 4). The PSD of 90 was above the objective range of 30-60; while the PSD-P of 6 was within the objective range of 5-10 (Table 3).

Limited growth information was collected in 2008. Based on a sub-sample of 23 bluegills, the weighted mean total length at capture of bluegill from the 2005 year-class (age-3) was 174 mm. Mean W_r values of bluegill in the 2008 frame net catch from Pickerel Lake ranged from 109 to 128 for all length categories sampled. The mean W_r of stock-length bluegill was 109 (Table 1). However, reported values may have been influenced by seasonal sampling biases (i.e., spawning behavior) in Pickerel Lake during 2008.

Northern Pike: Northern pike typically are not sampled effectively using standard lake survey methods; therefore reported values may not accurately represent the at-large population. Neumann and Willis (1995) reported the most reliable time to sample northern pike with gill nets was late spring following the spawn.

The mean gill net CPUE of stock-length northern pike was 5.7 (Table 1) and above the minimum objective (≥ 3 stock-length northern pike/net; Table 3). Since 2001, the mean gill net CPUE of stock-length northern pike has fluctuated from a low of 0.5 (2005) to a high of 6.0 (2007) with the 2001-2008 average being 3.7 (Table 2). Based on the 2008 gill net catch, northern pike relative abundance appears to be high (>3 stock-length northern pike/net).

Northern pike sampled in gill nets during 2008 ranged in total length from 33 to 86 cm (13.0 to 33.9 in), had a PSD of 56, and a PSD-P of 6 (Table 1). Both the PSD and PSD-P values for northern pike in the gill net catch were within the objective ranges of 30-60 and 5-10 (Table 3). Northern pike in the 2008 gill net catch from Pickerel Lake had mean W_r values that ranged from 80-93 for all length categories sampled and no length-related trends were apparent. The mean W_r for stock-length northern pike was 82 (Table 1). Mean W_r values were likely at a seasonal low as Neumann and Willis (1995) reported that W_r values were lowest during spring following the spawn and throughout the summer in Lake Thompson, South Dakota.

Smallmouth bass: Currently, fall night electrofishing is used to assess smallmouth bass populations in NE South Dakota. However, concerns regarding the effectiveness of fall night electrofishing at sampling large smallmouth bass have resulted in a Master of Science project being designed to evaluate the most effective approach to sample smallmouth bass. This project began in the spring of 2007 and will continue through 2008.

During 2008, the mean fall night electrofishing CPUE of smallmouth bass from Pickerel Lake was 96.3, a decrease from the 123.5 observed in 2007 (Table 1; Table 2). Since 2001, the mean fall night electrofishing CPUE of stock-length smallmouth bass in Pickerel Lake has ranged from a low of 57.6 (2001) to a high of 240.0 (2006) with the 2001-2008 average being 129.2 (Table 2). Age structure information from smallmouth bass captured in the 2008 frame net catch and during fall night electrofishing indicated consistent recruitment (Table 4; Table 5).

In 2008, smallmouth bass captured during fall night electrofishing ranged in total length from 18 to 48 cm (7.1 to 18.9 in), had a PSD of 28, and a PSD-P of 14 (Table 1; Figure 5). The 2008 PSD was below the objective range (40-70) likely due to consistent recruitment and large year-classes of smallmouth bass entering the population; while the PSD-P of smallmouth bass was within the objective range (10-40). Approximately 20% of smallmouth bass sampled during fall night electrofishing were within the protected slot and only one smallmouth bass captured was above the 457 mm (18 inch) upper slot length in our sample; however, it is thought that fall night electrofishing often is not consistent in capturing larger smallmouth bass (Ermer et al. 2005).

Growth of smallmouth bass in Pickerel Lake has been similar to the regional and statewide average with smallmouth bass reaching quality length (≥ 280 mm) between age-3 and age-4 (Table 4; Table 5). Mean W_r values of stock-length smallmouth bass captured during fall night electrofishing ranged from 89 to 101 for all length groups sampled. Smallmouth bass in the preferred- to memorable-length category had the lowest condition and smallmouth bass in the stock- to quality-length category had the highest condition.

Walleye: The mean gill net CPUE of stock-length walleye during 2008 was 6.0 (Table 1), and below the minimum objective (≥ 10 stock length fish/net night) for walleye in Pickerel Lake (Table 3). Since 2001, walleye abundance in Pickerel Lake based on gill net CPUE has ranged from 4.3 (2002) to 21.5 (2004) stock-length walleye/net night with the 2001-2008 average being 12.3 (Table 2). Based on the 2008 gill net CPUE relative abundance of walleye in Pickerel Lake appears to be moderate (4-11 stock-length walleye/net).

Natural reproduction in Pickerel Lake has been consistently poor with fall night electrofishing catch rates of age-0 walleye commonly below 12/hr (Table 2; Ermer et al. 2005). Therefore, walleye relative abundance has relied heavily on large fingerling stockings to establish year classes capable of sustaining the walleye fishery (Ermer et al 2005). Lucchesi (1997) reported that large fall fingerling walleye stockings contributed 79%, 38%, and 66% to the walleye population in 1992, 1993, and 1994, respectively. Large fingerling stockings made in 2001-2004 were well represented in the 2007 gill net catch; while large fingerling stockings made in 2004 and 2006 coincided with the most represented year classes in the 2008 walleye gill net catch (Table 9; Table 10). Walleye large fingerlings were stocked in 2008; however, recruitment is unknown and will be assessed in future surveys (Table 9).

Walleye in the 2008 gill net catch ranged in total length from 17 to 68 cm (6.7 to 26.8 in), had a PSD of 31 and PSD-P of 3 (Table 1; Figure 6). The 2008 PSD decreased from 2007, but was within the objective range (30-60); while the PSD-P increased slightly from 2007, but remained below the objective range (5-10), indicating a lower than desired proportion of preferred-length walleye in the population. Approximately 64% of the walleye captured in gill nets during 2008 were below the 356-mm (14-inch) minimum length restriction enforced on Pickerel Lake (Figure 6).

Walleye in Pickerel Lake typically attain the 356-mm (14-inch) minimum length restriction during their fourth growing season (age-3+; Table 8). The weighted mean total length at capture of age-3 walleye has ranged from 310 to 358 mm in surveys conducted from 2005-2008; while age-4 walleye had weighted mean total length at capture values that ranged from 349 to 388 mm (Table 8). Mean W_r values ranged from 82-91 for all length groups sampled and no length-related trends in condition were apparent during 2008. The mean W_r of stock-length walleye captured in gill nets from Pickerel Lake during 2008 was 82 (Table 1).

Yellow Perch: The 2008 mean gill net CPUE of stock-length yellow perch was 30.0 (Table 1) and above the minimum objective (≥ 25 stock-length yellow perch/net) for Pickerel Lake (Table 3). Since 2001, the gill net CPUE of stock-length yellow perch has fluctuated from a low of 28.5 (2001; 2004) to a high of 55.8 (2006; Table 2). Length-frequency analysis of yellow perch in the 2008 gill net catch suggests consistent recruitment as no missing cm-groups exist from 12 to 26 cm (Figure 7). Based on the 2008 gill net catch, yellow perch relative abundance in Pickerel Lake appears to be moderate (8-30 stock-length yellow perch/net).

During 2008, gill net captured yellow perch from Pickerel Lake ranged in total length from 12 to 26 cm (4.7 to 10.2 in), had a PSD of 29, and a PSD-P of 2 (Table 1; Figure 7). Both PSD and PSD-P values were below the objective ranges of 30-60 and 5-10, respectively, indicating a population dominated by smaller yellow perch (Figure 7).

No growth information was available for yellow perch in 2008. A slight decreasing trend in mean W_r values was apparent as yellow perch total length increased; however, mean W_r values exceeded 85 for all length groups sampled. The mean W_r of stock-length yellow perch in the 2008 gill net catch was 105 (Table 1).

Other Species

Black bullhead: Relative abundance of black bullhead in Pickerel Lake remained low from 2001-2007 with mean frame net CPUE values of <5 stock-length black bullheads/net. In 2008, the mean frame net CPUE of stock-length black bullhead increased to 19.4 (Table 1), but remained within the management objective (≤ 100 stock-length black bullhead/net) for Pickerel Lake (Table 3). The increase in relative abundance can be attributed to recruitment of what appears to be a relatively-strong year class that ranged in total length from 23 to 29 cm (9.1 to 11.4 in; Figure 8). Based on the 2008 frame net catch relative abundance of black bullhead in Pickerel Lake appears to be moderate (>22 stock-length black bullhead/net).

Frame net captured black bullheads from Pickerel Lake during 2008 ranged in total length from 19 to 36 cm (7.5 to 14.2 in) had a PSD of 95 and a PSD-P of 1. No growth information was collected in 2008. Mean W_r values for black bullheads in the 2008 frame net catch ranged from 84 to 93 for all length categories sampled with the mean W_r of stock-length black bullheads being 89. No length-related trends in condition were apparent.

Largemouth bass: Largemouth bass are present in Pickerel Lake but at a low density. Spring night electrofishing, which is used to assess largemouth bass populations in NE South Dakota, was last conducted in 2000 and 2002. McKibbin (2002) reported sampling no largemouth bass in spring night electrofishing during 2000; and SDGFP personnel sampled only three in 2002.

Rock Bass: The 2008 mean frame net CPUE of stock-length fish was 8.4 (Table 1), an increase from the 4.4 observed in 2007 (Table 2). Since 2001, the mean frame net CPUE of stock-length rock bass has ranged from a low of 2.7 (2001) to a high of 11.8 (2002) with the 2001-2008 average being 6.0 (Table 2). Rock bass captured in the 2008 frame net catch from Pickerel Lake ranged in total length from 11 to 26 cm (4.3 to 10.2 in), had a PSD of 54 and a PSD-P of 7 (Figure 9).

No age growth data was collected for rock bass in 2008. Mean W_r values of frame net captured rock bass in 2008 ranged from 101 to 117 with the mean W_r of stock-length rock bass being 112 (Table 1).

Other: Common carp, spottail shiner, white bass and white sucker were captured in low numbers during the 2008 survey (Table 1).

Management Recommendations

- 1) Conduct fish population assessment surveys on an annual basis (next survey scheduled in summer 2009) to monitor fish relative abundance, fish population size structures, fish growth, and stocking success.
- 2) Conduct fall night electrofishing on an annual basis to monitor walleye young-of-the-year abundance.
- 3) Conduct spring night electrofishing on a biennial basis to monitor smallmouth bass population parameters.
- 4) Collect otoliths from black crappie, bluegill, walleye, and yellow perch; scales from smallmouth bass to assess growth rates and age structure of each population.
- 5) Stock walleye at (≈ 25 large fingerlings/acre) to establish additional year classes if gill netting and/or fall night electrofishing CPUE of age-0 walleye results warrant (i.e., low gill net CPUE of < 250 mm (10 inch) walleye and/or fall night electrofishing CPUE of age-0 walleye < 75 fish/hour).
- 6) Evaluate walleye and black bass (largemouth and smallmouth) population dynamics and implement regulations to benefit the population and comply with tool box options.

Table 1. Mean catch rate (CPUE; gill/frame nets = catch/net night, electrofishing = catch/hour) of stock-length fish, proportional size distribution of quality- (PSD0 and preferred-length (PSD-P) fish, and mean relative weight (Wr) of stock-length fish for various fish species captured in gill nets, frame nets, and electrofishing in Pickerel Lake, 2008. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). BLB= black bullhead; BLC= black crappie; BLG= bluegill; COC= common carp; NOP= northern pike; ROB= rock bass; SMB= smallmouth bass; SPS= spottail shiner; WAE= walleye; WHB= white bass; WHS= white sucker; YEP= yellow perch

Species	Abundance		Stock Density Indices				Condition	
	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
<i>Frame nets</i>								
BLB	19.4	5.8	95	2	1	1	89	1
BLC	15.6	2.8	61	5	7	3	109	1
BLG	29.2	7.9	90	2	6	2	121	1
NOP	0.7	0.3	38	25	15	19	85	3
ROB	8.4	2.8	54	6	7	3	112	1
SMB	5.4	1.0	27	7	10	5	86	1
WAE	0.3	0.2	17	33	17	33	80	3
WHB	0.2	0.1	100	0	67	33	83	13
WHS	0.3	0.2	80	20	80	20	90	7
YEP	0.2	0.1	0	---	0	---	92	9
<i>Gill nets</i>								
BLB	5.5	5.0	100	0	3	5	95	1
BLC	26.8	7.3	53	7	1	2	114	2
BLG	0.7	0.3	75	25	0	---	121	12
COC	0.7	0.5	100	0	25	59	95	2
NOP	5.7	1.9	56	14	6	7	82	1
ROB	0.2	0.2	0	---	0	---	101	---
SMB	0.3	0.5	0	---	0	---	90	---
SPS ¹	1.5	0.5	---	---	---	---	---	---
WAE	6.0	1.8	31	13	3	4	82	2
WHB	0.8	0.5	100	0	80	20	87	12
WHS	3.7	1	100	0	86	13	108	2
YEP	30.0	8.6	29	6	2	1	104	<1
<i>Electrofishing</i>								
SMB ²	96.3	11.9	28	7	14	6	98	1
WAE ² (age-0)	1.0	---	---	---	---	---	---	---

¹ All fish sizes.

² Fall night electrofishing.

Table 2. Historic mean catch rate (CPUE; gill/frame nets = catch/net night, electrofishing = catch/hour) of stock-length fish for various fish species captured in gill nets, frame nets, and electrofishing in Pickerel Lake, 2001-2008. BLB= black bullhead; BLC= black crappie; BLG= bluegill; COC= common carp; EMS= emerald shiner; LMB= largemouth bass; NOP= northern pike; ROB= rock bass; SMB= smallmouth bass; SPS= spottail shiner; WAE= walleye; WHB= white bass; WHS= white sucker; YEP= yellow perch

Species	CPUE								Mean
	2001	2002	2003	2004	2005	2006 ³	2007 ³	2008	
<i>Frame nets</i>									
BLB	0.2	3.1	4.3	0.8	2.0	1.8	2.6	19.4	4.3
BLC	14.2	19.7	6.3	3.8	1.4	8.1	12.6	15.6	10.2
BLG	1.4	3.9	5.6	6.3	4.2	14.2	17.0	29.2	10.2
COC	0.1	0.0	0.2	0.1	0.0	0.2	0.1	0.0	0.1
LMB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOP	1.1	0.4	0.4	0.1	0.5	0.3	0.7	0.7	0.5
ROB	2.7	11.8	4.7	3.8	7.6	4.7	4.4	8.4	6.0
SMB	0.9	4.7	3.2	1.6	1.9	5.6	5.6	5.4	3.6
SPS ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WAE	0.4	0.3	0.5	0.2	0.2	0.7	0.6	0.3	0.4
WHB	0.3	0.1	0.1	1.1	0.0	0.2	1.8	0.2	0.5
WHS	11.8	1.4	1.2	0.9	0.3	0.2	0.9	0.3	2.1
YEP	0.1	0.5	0.3	1.6	0.8	1.2	2.3	0.2	0.9
<i>Gill nets</i>									
BLB	0.2	0.3	0.0	0.0	0.0	0.2	4.5	5.5	1.3
BLC	15.7	9.7	12.3	13.2	3.2	1.8	16.7	26.8	12.4
BLG	2.5	0.0	0.2	0.0	0.2	0.5	1.5	0.7	0.7
COC	0.2	0.5	0.0	0.2	0.0	2.5	1.7	0.7	0.7
EMS ¹	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1
NOP	5.2	4.2	4.8	1.5	0.5	1.8	6.0	5.7	3.7
ROB	0.5	1.3	0.3	2.2	0.5	1.0	1.8	0.2	1.0
SMB	0.7	1.3	3.2	0.5	3.3	2.0	1.2	0.3	1.6
SPS ¹	0.0	0.0	0.3	2.2	0.0	0.0	0.0	1.5	0.5
WAE	10.2	4.3	10.3	21.5	11.7	21.3	12.7	6.0	12.3
WHB	0.7	0.8	2.0	1.8	0.8	0.7	1.8	0.8	1.2
WHS	6.7	3.5	4.3	1.5	3.2	2.3	3.5	3.7	3.6
YEP	28.5	34.5	50.3	28.5	33.5	55.8	43.7	30.0	38.1
<i>Electrofishing</i>									
SMB ²	57.6	93.1	126.2	205.6	91.2	240.0	123.5	96.3	129.2
WAE ² (age-0)	10.0	0.0	6.0	0.0	7.6	9.9	12.0	1.0	5.8

¹ All fish sizes.

² Fall night electrofishing.

³ Monofilament gill net mesh size change (.75", 1", 1.25", 1.5", 2" and 2.5")

Table 3. Mean catch rate (CPUE; gill/frame nets = catch/net night, electrofishing = catch/hour) of stock-length fish, proportional size distribution of quality- (PSD0 and preferred-length (PSD-P) fish, and mean relative weight (Wr) for selected species captured in gill nets, frame nets, and electrofishing in Pickerel Lake, 2001-2008. BLC= black crappie; BLG= bluegill; SMB= smallmouth bass; WAE= walleye; YEP= yellow perch

Species	2001	2002	2003	2004	2005	2006 ²	2007 ²	2008	Average	Objective
<i>Frame nets</i>										
BLC										
CPUE	14	20	6	4	1	8	13	16	10	≥ 10
PSD	62	99	97	96	100	99	20	61	79	30-60
PSD-P	2	5	78	62	60	99	18	7	41	5-10
Wr	112	102	103	101	104	94	117	109	105	---
BLG										
CPUE	1	4	6	6	4	14	17	29	10	≥ 25
PSD	96	91	48	98	74	38	58	90	74	30-60
PSD-P	15	66	18	10	57	15	3	6	24	5-10
Wr	120	118	125	129	126	115	116	121	121	---
<i>Gill nets</i>										
NOP										
CPUE	5	4	5	2	1	2	6	6	4	≥ 3
PSD	58	72	55	44	100	55	56	56	62	30-60
PSD-P	16	28	3	22	0	9	3	6	11	5-10
Wr	78	87	90	81	83	85	80	82	83	---
WAE										
CPUE	10	4	10	22	12	21	13	6	12	≥ 10
PSD	20	58	32	5	3	40	53	31	30	30-60
PSD-P	7	4	8	2	0	0	1	3	3	5-10
Wr	85	86	86	86	86	89	84	82	86	---
YEP										
CPUE	29	35	50	29	34	56	44	30	38	≥ 25
PSD	60	76	50	68	93	21	17	29	52	30-60
PSD-P	15	24	15	15	51	10	5	2	17	5-10
Wr	110	101	107	101	114	101	102	104	105	---
<i>Electrofishing</i>										
SMB ¹										
CPUE	58	93	126	206	91	240	124	96	129	---
PSD	33	16	11	44	55	32	33	28	32	40-70
PSD-P	13	0	3	4	24	13	17	14	11	10-40
Wr	89	94	99	96	109	95	90	98	96	---
WAE ¹										
CPUE (age-0)	10	0	6	0	8	10	12	1	6	---

¹ fall night electrofishing.

² Monofilament gill net mesh size change (.75", 1", 1.25", 1.5", 2" and 2.5")

Table 4. Mean back-calculated length (mm) at age and standard error (SE) for smallmouth bass captured during fall night electrofishing in Pickerel Lake, 2008.

Year	Age	N	Age								
			1	2	3	4	5	6	7	8	
2007	1	18	97								
2006	2	57	84	152							
2005	3	19	94	171	233						
2004	4	7	87	172	251	313					
2003	5	2	92	159	256	318	369				
2002	6	5	96	187	255	307	371	408			
2001	7	2	84	170	265	319	354	392	414		
2000	8	1	90	176	256	291	322	352	389	418	
Mean	---	111	91	170	253	309	354	384	402	418	
SE	---	---	2	4	4	5	11	16	13	0	
<i>Mean Comparison</i> [†]											
			98	180	241	291	---	---	---	---	
			92	169	237	304	335	---	---	---	
			96	179	249	316	339	---	---	---	
			91	171	242	300	333	---	---	---	

[†] Willis et al. 2001.

Table 5. Mean back-calculated length (mm) at age and standard error (SE) for smallmouth bass captured using frame nets in Pickerel Lake, 2008.

Year	Age	N	Age								
			1	2	3	4	5	6	7	8	
2006	2	26	86	172							
2005	3	62	100	190	240						
2004	4	9	87	197	273	306					
2003	5	10	91	183	265	320	346				
2002	6	2	78	159	224	282	330	355			
2001	7	2	83	173	247	303	353	381	403		
2000	8	1	96	168	268	323	370	397	436	458	
Mean	---	112	89	177	253	307	350	377	420	458	
SE	---	---	3	5	8	7	8	12	17	0	
<i>Mean Comparison</i> [†]											
			98	180	241	291	---	---	---	---	
			92	169	237	304	335	---	---	---	
			96	179	249	316	339	---	---	---	
			91	171	242	300	333	---	---	---	

[†] Willis et al. 2001.

Table 6. Weighted mean length at capture (mm) for black crappie captured using frame nets in Pickerel Lake, 2006-2008.

Year	N	Age									
		1	2	3	4	5	6	7	8	9	10
2008	277	---	---	201	236	---	---	285	291	---	294
2007	332	---	153	213	---	273	286	---	---	299	

Table 7. Numbers of black crappie sampled (n) using frame nets, by year class in Pickerel Lake, 2006-2008.

Survey Year	Year Class											
	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
2008				259	1			7	2		8	
2007	---			286	3		1	9			33	

Table 8. Weighted mean length at capture (mm) for walleye captured in experimental gill net sets in Pickerel Lake, 2001-2008. Note: sampling was conducted at approximately the same time during each year allowing comparisons among years to monitor growth trends.

Year	N	Age													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
2008 ¹	44	190	262	331	375	447	393	461	---	---	---	---	---	---	682
2007 ¹	81	211	295	358	388	445	433	489	---	---	---	---	---	---	---
2006 ¹	128	---	300	333	387	398	469	---	---	495	---	---	---	---	
2005 ¹	75	---	255	310	349	---	---	408	---	---	---	---	---	---	
2004	135	187	293	330	388	443	---	511	584	---	---	---	---	---	
2003	96	197	251	357	406	427	520	587	---	---	---	---	---	---	
2002	33	145	298	377	401	485	---	---	---	---	---	---	---	---	
2001	61	---	270	319	384	419	---	---	642	---	---	---	---	---	

¹ Age assignments made using otoliths; scales were used in previous years.

Table 9. Stocking history including size and number for fishes stocked into Pickerel Lake, 1996 - 2006. LMB= largemouth bass; SMB= smallmouth bass; WAE= walleye

Year	Species	Size	Number
1994	WAE	large fingerling	21,731
1995	WAE	large fingerling	26,227
1996	WAE	large fingerling	16,339
1997	WAE	large fingerling	23,644
1998	WAE	large fingerling	14,960
2001	LMB	large fingerling	13,420
2001	WAE	large fingerling	56,250
2002	WAE	large fingerling	13,420
2003	WAE	large fingerling	18,582
2004	SMB	fingerling	700
	WAE	large fingerling	26,940
2006	LMB	fingerling	101,500
	WAE	large fingerling	25,146
2007	WAE	large fingerling	765
2008	WAE	large fingerling	15,135

Table 10. Numbers of walleye sampled (n) using gill nets, by year class and associated stocking history (Number stocked x 1,000) for walleye captured in Pickerel Lake, 2001-2008.

Survey Year	Year Class															
	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	
2008 ¹		3	19	3	10	3	3	2								1
2007 ^{1,2}			6	2	31	15	8	16	3							
2006 ^{1,2}					26	34	15	49	3				1			
2005 ¹			---			12	15	47			1					
2004			---	---		6	22	101	1	2		2	1			
2003			---	---	---		7	54	17	5	6	4				
2002			---	---	---	---		7	2	6	15	3				
2001			---	---	---	---	---			7	40	7	3			
# stocked																
fry																
sm. fingerling																
lg. fingerling	15	1	25		27	19	13	56			15	24	16	26	22	

¹ Age assignments made using otoliths; scales were used in previous years.

² Monofilament gill net mesh size change (.75", 1", 1.25", 1.5", 2" and 2.5")

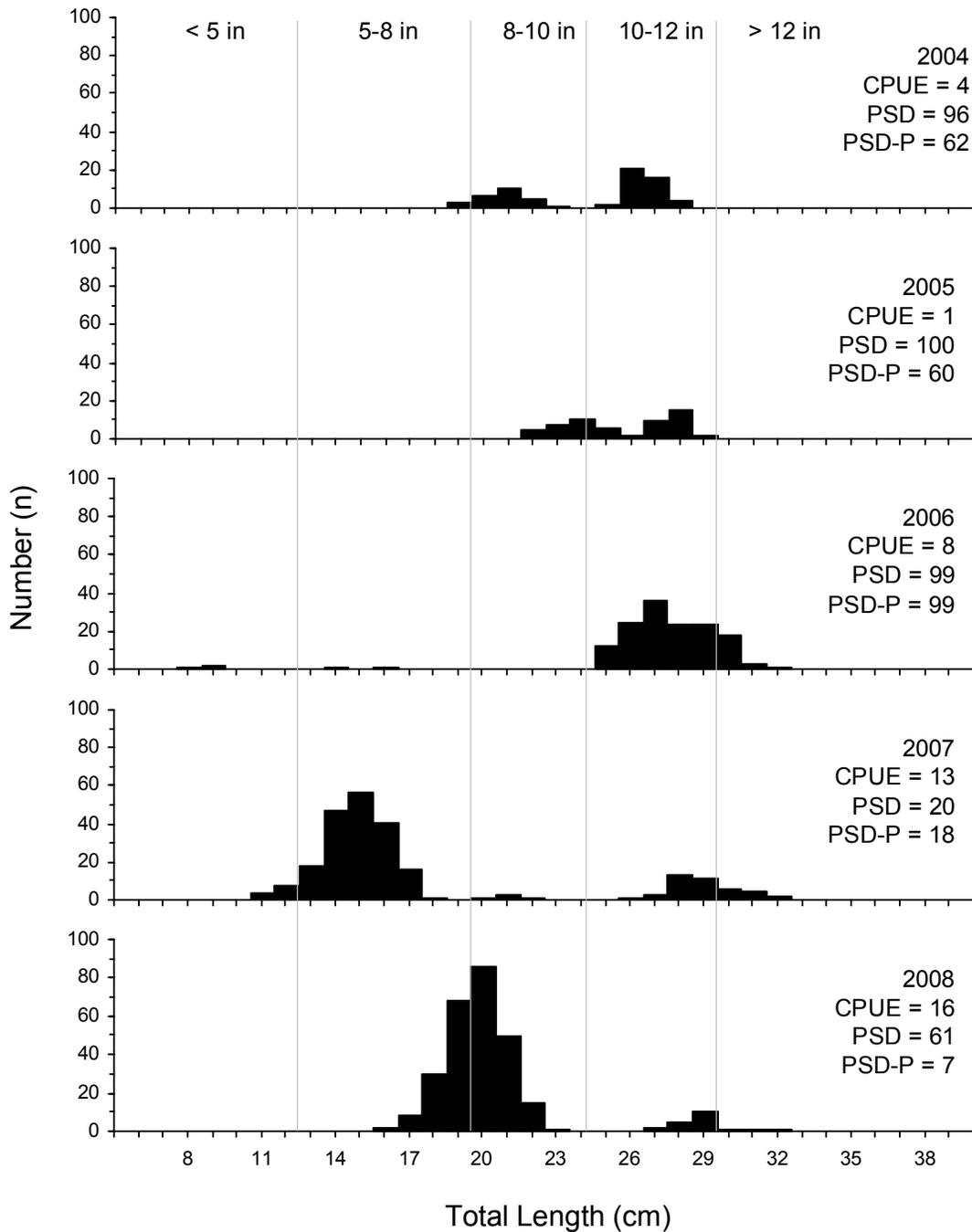


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black crappie captured using frame nets in Pickerel Lake, 2004-2008.

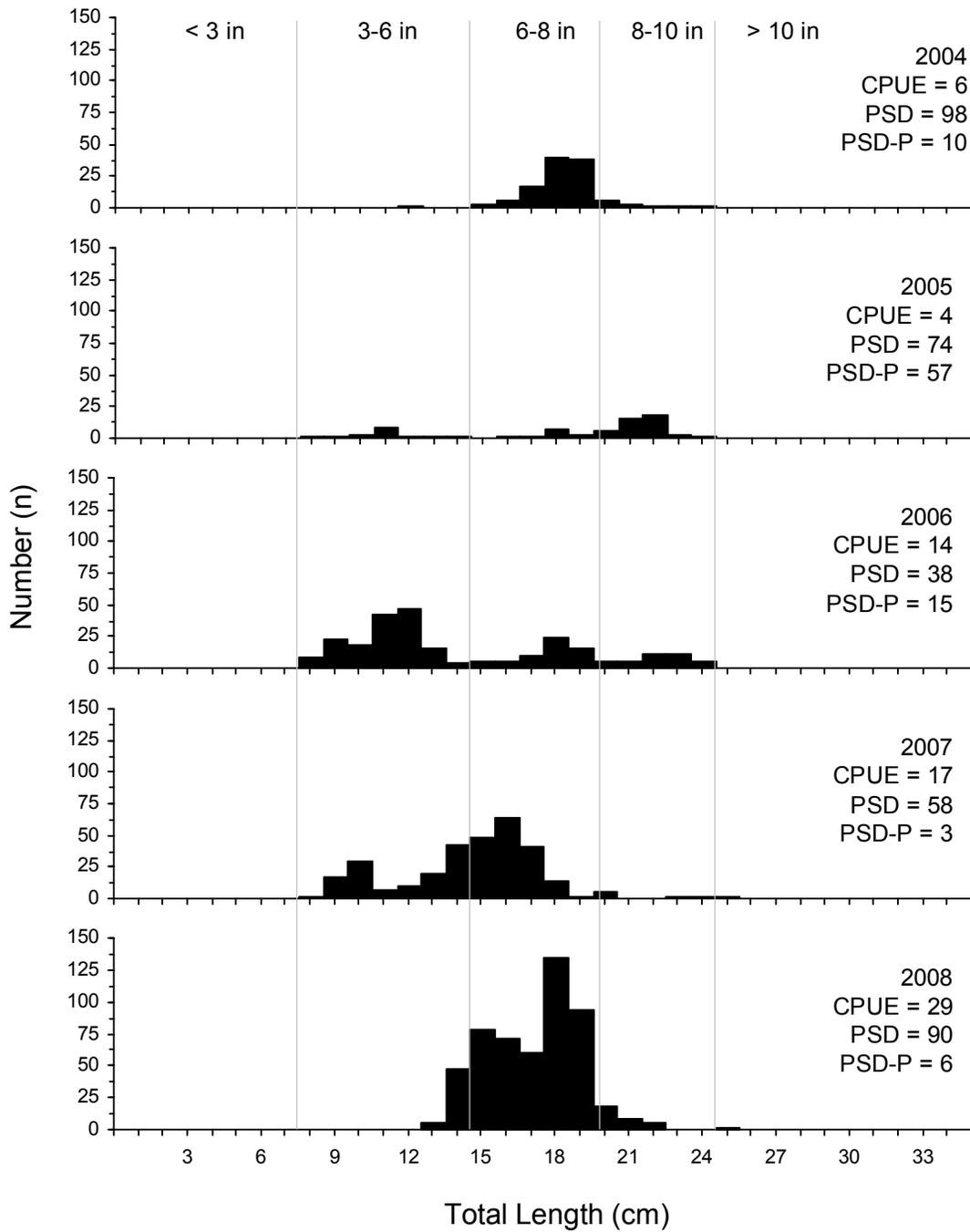


Figure 4. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for bluegill captured using frame nets in Pickerel Lake, 2004-2008.

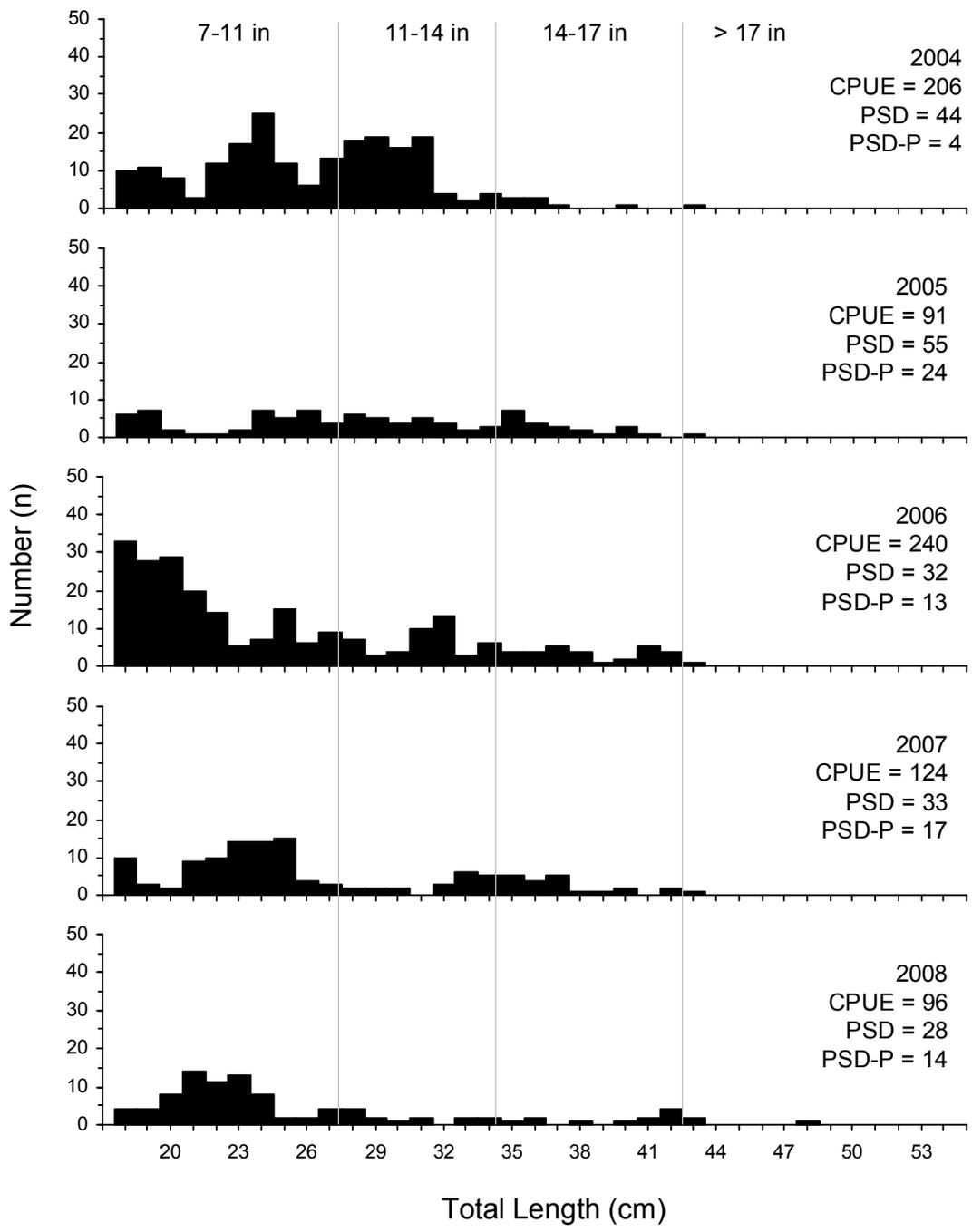


Figure 5. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for smallmouth bass captured using fall night electrofishing in Pickerel Lake, 2004-2008.

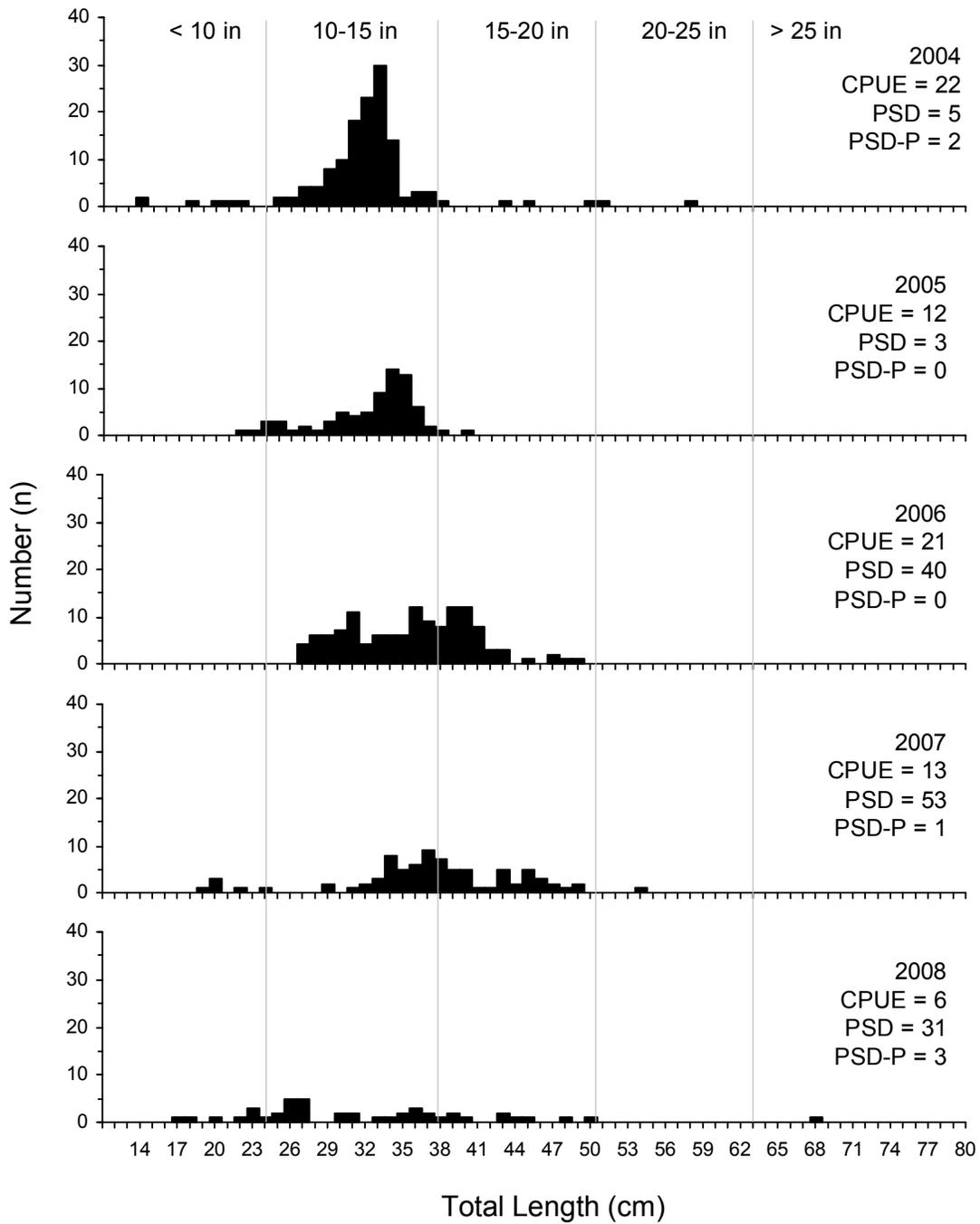


Figure 6. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for walleye captured using gill nets in Pickerel Lake, 2004-2008.

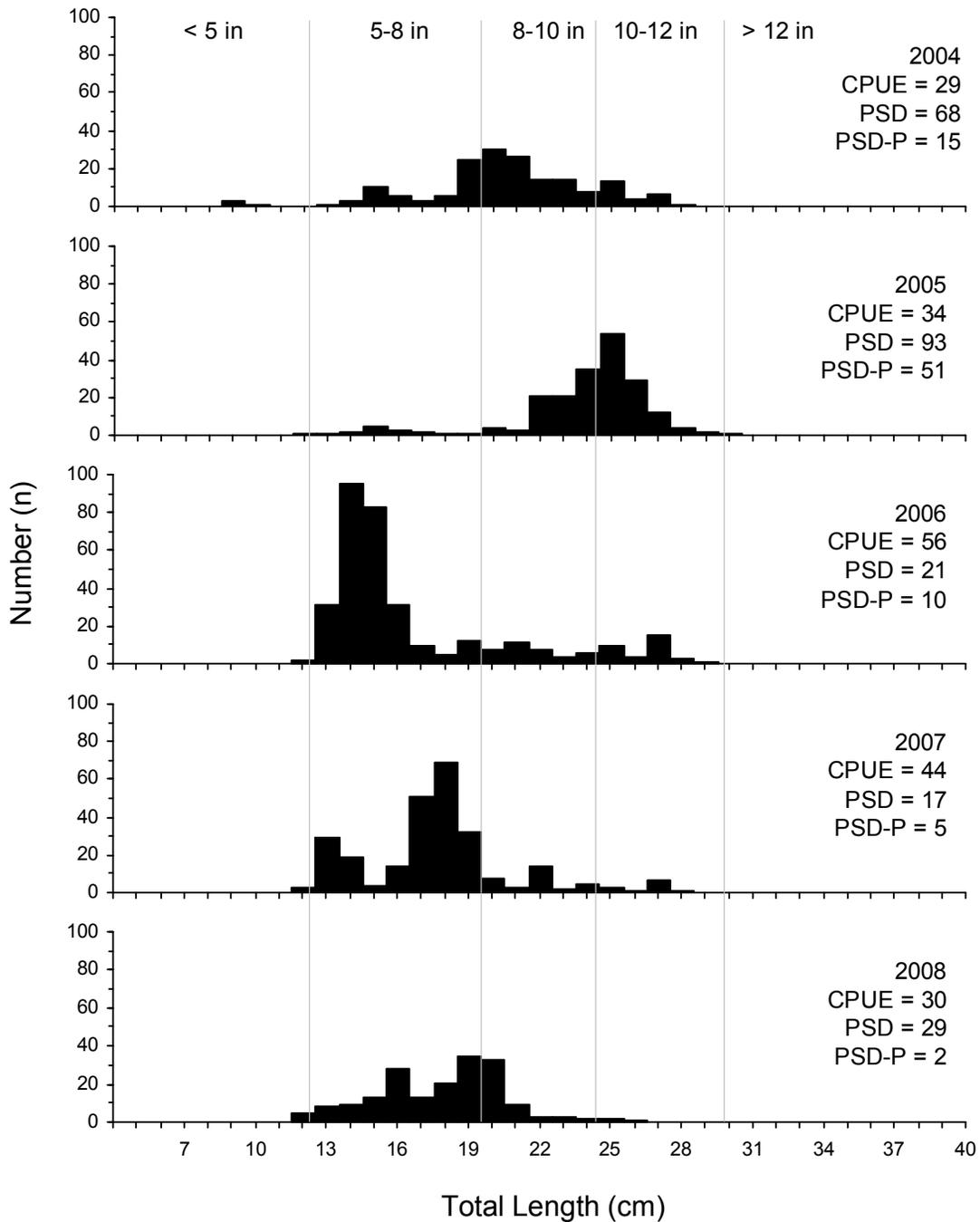


Figure 7. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for yellow perch captured using gill nets in Pickerel Lake, 2004-2008.

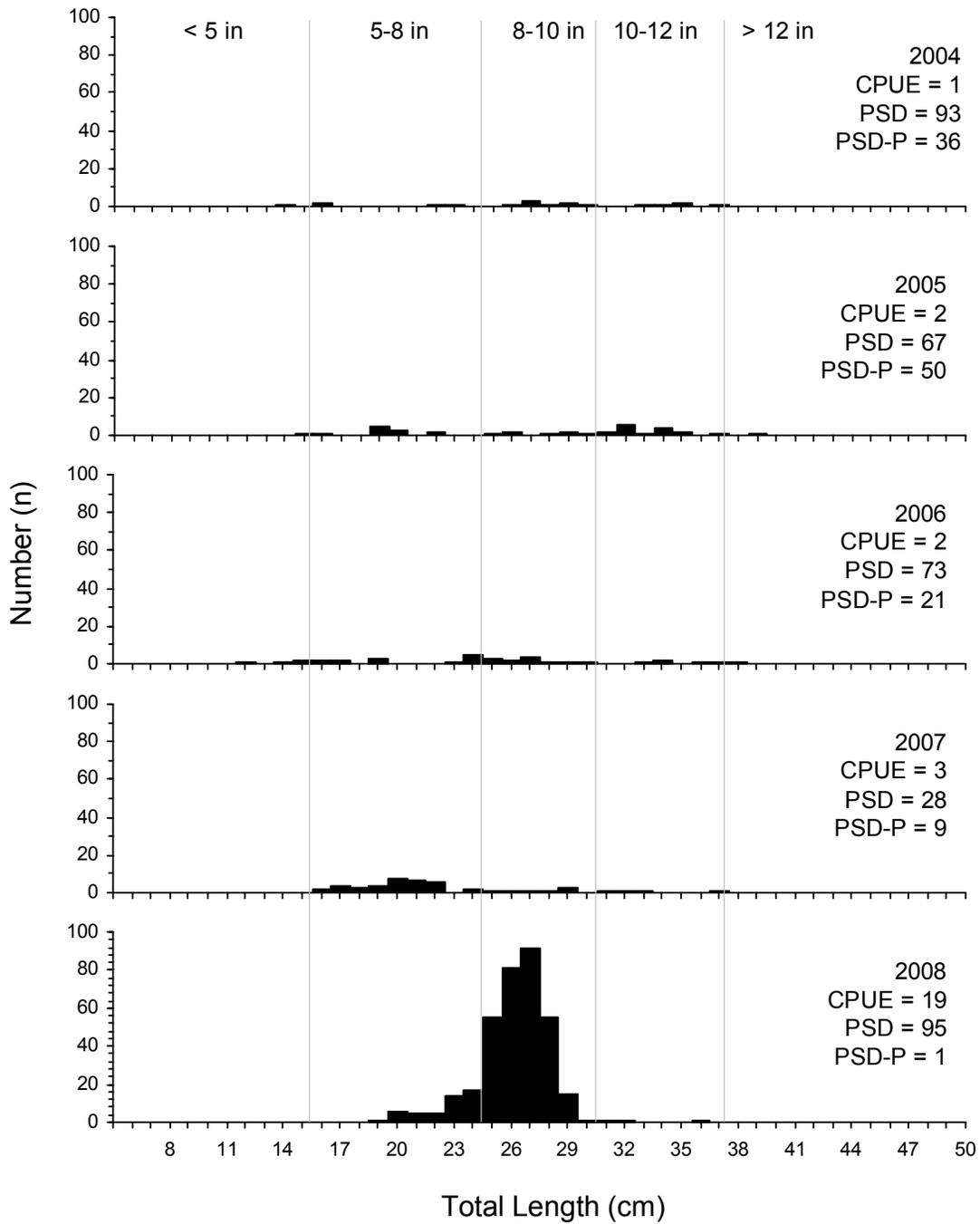


Figure 8. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for black bullhead captured using frame nets in Pickerel Lake, 2004-2008.

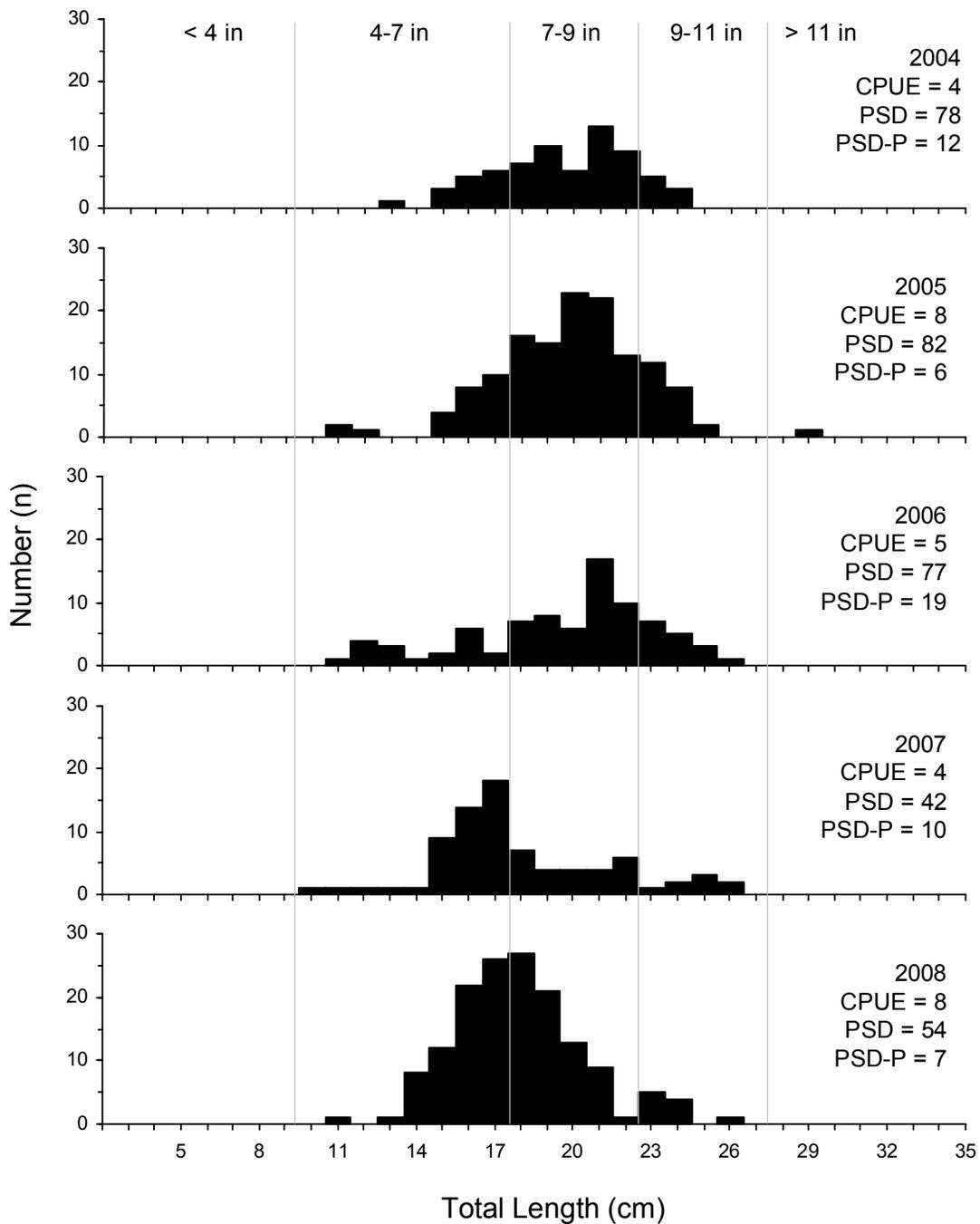


Figure 9. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for rock bass captured using gill nets in Pickerel Lake, 2004-2008.